IN THE CLAIMS:

Please cancel claim 1.

Please amend the claims as follows.

1. (Cancelled) A vibration control system for use with a fabricating system, said vibration control system comprising:

an actuator assembly for controlling vibration;

a sensor for detecting at least one parameter of displacement of said fabricating system and producing a signal in response thereto; and

a circuit in electrical communication with said actuator assembly and said sensor;

wherein, upon the detection of said at least one parameter of displacement by said sensor, said sensor signals said circuit, which, in response, activities said actuator assembly to control vibration.

2. (original) The vibration control system of claim [1] [4], said actuator assembly comprising an actuator selected from the group consisting of a strain actuator, an electroactive strain actuator, a piezoelectric strain actuator, and an electroactive stack actuator.

3. (original) The vibration control system of claim [1] [4], said actuator assembly comprising at least two actuators.

4. (Currently Amended) The vibration control system for use with a fabricating system, said vibration control system comprising: ~~of claim 1,~~

an actuator assembly for controlling vibration;

said actuator assembly comprising

(a) an electroactive element;

(b) a conductor; and

(c) an insulator;

wherein said electroactive element, said conductor, and said insulator are bonded together such that in-plane strain in said electroactive element is shear-coupled between said electroactive element and said insulator;

a sensor for detecting at least one parameter of displacement of said fabricating system and producing a signal in response thereto; and

a circuit in electrical communication with said actuator assembly and said sensor;

wherein, upon the detection of said at least one parameter of displacement by said sensor, said sensor signals said circuit, which, in response, activates said actuator assembly to control vibration..

5. (original) The vibration control system of claim [1] [4], said sensor being selected from the group consisting of a strain sensor, an accelerometer, a laser displacement sensor, and a laser interferometer.

6. (original) The vibration control system of claim [1] [4], said sensor comprising at least two sensors.

7. (original) The vibration control system of claim 6, said at least two sensors being capable of producing at least two different signals.

8. (original) The vibration control system of claim 7, wherein said circuit interprets said at least two different signals as the sum difference between the two different signals.

9. (original) The vibration control system of claim [1] [4], wherein said fabricating system is a system for fabricating electronic components, the components being selected from the group consisting of semiconductor chips, printed circuit boards, liquid crystal displays, and thin film devices.

10. (withdrawn)

11. (previously amended) The vibration control system of claim ~~[1]~~ [4], wherein said actuator assembly controls vibration of the fabricating system thereby increasing the accuracy of the system for fabricating electronic components.

12. (original) The vibration control system of claim 11, wherein said actuator assembly controls vibration of the fabricating system thereby increasing fabrication throughput of the system for fabricating electronic components.

13. (original) The vibration control system of claim ~~[1]~~ [4], wherein said fabricating system is selected from the group consisting of a pick and place system, a lithography system, and a liquid crystal display manufacturing system.

14. (original) The vibration control system of claim ~~[1]~~ [4], wherein said fabricating system is a system for fabricating electronic components, and wherein the vibration is produced from a disturbance external the system for fabricating electronic components.

15. (original) The vibration control system of claim ~~[1]~~ [4], wherein said fabricating system is a system for fabricating electronic components, and wherein the vibration is produced from a disturbance internal to the system for fabricating electronic components.

16. (original) The vibration control system of claim ~~[1]~~ [4], wherein said fabricating system is a system for fabricating electronic components comprising a lens assembly, a wafer stage, and a support structure for supporting the lens assembly and the wafer stage.

17. (original) The vibration control system of claim 16, wherein said sensor detects displacement of the lens assembly relative to the wafer stage, and signals the circuit which, in response, signals said actuator assembly such that said actuator assembly decreases said displacement.

18. (original) The vibration control system of claim 16, said vibration control system being secured to said support structure.

19. (previously amended) The vibration control system of claim 15, wherein said fabricating system comprises a part selected from a group consisting of a step motor, a DC motor, a hydraulic actuator, and a pneumatic actuator, and wherein said vibration is caused by said part.

20. (original) The vibration control system of claim [1] [4], wherein said actuator assembly is detachably secured within the vibration control system.

21. (original) The vibration control system of claim [1] [4], said vibration control system further comprising an electrical connection coupling said vibration control system to the fabricating system, and wherein said electrical communicates a signal to or from the vibration control system, said signal being selected from the group consisting of an able/disable signal, a system status signal, and a fault/error signal.

22. (original) The vibration control system of claim [1] [4], further comprising a control system having at least one controller that produces a signal, and which is in electrical communication with said circuit, and wherein said circuit activates said actuator assembly in response to the signal from the controller.

23. (previously amended) The vibration control system of claim 22, wherein said signal from said controller relates to linear displacement, auto-tuning, gain scheduling, external gain control, feed forward control, adaptive control, or feed back control.

24. (withdrawn)

25. (original) An vibration control system for use in a fabricating system, said vibration control system comprising:

an actuator assembly for controlling vibration;

said actuator assembly comprising

(a) an electroactive element;

(b) a conductor; and

(c) an insulator;

wherein said electroactive element, said conductor, and said insulator are bonded together such that in-plane strain in said electroactive element is shear-coupled between said electroactive element and said insulator; and

a circuit in electrical communication with said actuator assembly;

wherein said circuit signals said actuator assembly to control vibration of said fabricating system.

26. (original) An vibration control system for use in a fabricating system, said vibration control system comprising:

an actuator assembly for controlling vibration;

said actuator assembly comprising

(a) an electroactive element;

(b) a conductor; and

(c) an insulator;

wherein said electroactive element, said conductor, and said insulator are bonded together such that in-plane strain in said electroactive element is shear-coupled between said electroactive element and said insulator;

a sensor for detecting at least one parameter of performance of said fabricating system and producing a signal in response thereto;

and a circuit in electrical communication with said actuator assembly and said sensor;

wherein, upon the detection of said at least one parameter of performance by said sensor, said sensor signals said circuit, which, in response, activates said actuator assembly to control vibration.

27. (withdrawn)

28. (withdrawn)

29. (withdrawn)

30. (previously added) The vibration control system of claim 16, wherein said actuator assembly controls vibration in said support structure.

wherein, upon the detection of said at least one parameter of displacement by said sensor, said sensor signals said circuit, which, in response, activities said actuator assembly to control vibration.

31. (previously added) The vibration control system for use with a fabricating system having a support structure, said vibration control system comprising:

an actuator assembly for controlling vibration;

said actuator assembly comprising

(a) an electroactive element;

(b) a conductor; and

(c) an insulator;

wherein said electroactive element, said conductor, and said insulator are bonded together such that in-plane strain in said electroactive element is shear-coupled between said electroactive element and said insulator; and

a sensor for detecting at least one parameter of displacement of said fabricating system and producing a signal in response thereto; and

a circuit in electrical communication with said actuator assembly and said sensor;

wherein, upon the detection of said at least one parameter of displacement by said sensor, said sensor signals said circuit, which, in response, activates said actuator assembly to control vibration in said support structure.

32. (previously added) The fabricating system of claim 31, wherein said support structure supports a unitary part selected from the group consisting of a lens, a stage, and a gantry.

33. (withdrawn)

34. (withdrawn)

35. (withdrawn)

36. (previously added) A fabricating system comprising:

an actuator assembly for controlling vibration;

said actuator assembly comprising

(a) an electroactive element;

(b) a conductor; and

(c) an insulator;

wherein said electroactive element, said conductor, and said insulator are bonded together such that in-plane strain in said electroactive element is shear-coupled between said electroactive element and said insulator;

a sensor for detecting at least one parameter of displacement of said fabricating system and producing a signal in response thereto; and

a circuit in electrical communication with said actuator assembly and said sensor;

wherein, upon the detection of said at least one parameter of displacement by said sensor, said sensor signals said circuit, which, in response, activates said actuator assembly to control vibration.

37. (previously added) The fabricating system of claim 36, further comprising a control system having at least one controller that produces a signal, and which is in electrical communication with said circuit, and wherein said circuit activates said actuator assembly in response to said signal from the controller.

38. (withdrawn)

39. (withdrawn)

40. (New) The vibration control system for use with a fabricating system, said vibration control system comprising: ~~of claim 1,~~

an actuator assembly for controlling vibration;

said actuator assembly comprising

(a) a strain element comprising a piezoelectric or electrorestrictive plate, shell, fiber or composite; and

(b) a conductor;

wherein said strain element and said conductor are mounted in a housing forming a protective body about the strain element, together forming a flexible actuator assembly;

a sensor for detecting at least one parameter of displacement of said fabricating system and producing a signal in response thereto; and

a circuit in electrical communication with said actuator assembly and said sensor;

wherein, upon the detection of said at least one parameter of displacement by said sensor, said sensor signals said circuit, which, in response, activates said actuator assembly to control vibration..

41. (New) An vibration control system for use in a fabricating system, said vibration control system comprising:

an actuator assembly for controlling vibration;

said actuator assembly comprising

(a) a strain element comprising a piezoelectric or electrorestrictive plate, shell, fiber or composite; and

(b) a conductor;

wherein said strain element and said conductor are mounted in a housing forming a protective body about the strain element, together forming a flexible actuator assembly; and

a circuit in electrical communication with said actuator assembly;

wherein said circuit signals said actuator assembly to control vibration of said fabricating system.

42. (New) An vibration control system for use in a fabricating system, said vibration control system comprising:

an actuator assembly for controlling vibration;

said actuator assembly comprising

(a) a strain element comprising a piezoelectric or electrorestrictive plate, shell, fiber or composite; and

(b) a conductor;

wherein said strain element and said conductor are mounted in a housing forming a protective body about the strain element, together forming a flexible actuator assembly; and

a sensor for detecting at least one parameter of performance of said fabricating system and producing a signal in response thereto;

and a circuit in electrical communication with said actuator assembly and said sensor;

wherein, upon the detection of said at least one parameter of performance by said sensor, said sensor signals said circuit, which, in response, activates said actuator assembly to control vibration.

43. (New) The vibration control system for use with a fabricating system having a support structure, said vibration control system comprising:

an actuator assembly for controlling vibration;

said actuator assembly comprising

(a) a strain element comprising a piezoelectric or electrorestrictive plate, shell, fiber or composite; and

(b) a conductor;

wherein said strain element and said conductor are mounted in a housing forming a protective body about the strain element, together forming a flexible actuator assembly; and

a sensor for detecting at least one parameter of displacement of said fabricating system and producing a signal in response thereto; and

a circuit in electrical communication with said actuator assembly and said sensor;

wherein, upon the detection of said at least one parameter of displacement by said sensor, said sensor signals said circuit, which, in response, activates said actuator assembly to control vibration in said support structure.

44. (New) A fabricating system comprising;

an actuator assembly for controlling vibration;

said actuator assembly comprising

(a) a strain element comprising a piezoelectric or electrorestrictive plate, shell, fiber or composite; and

(b) a conductor;

wherein said strain element and said conductor are mounted in a housing forming a protective body about the strain element, together forming a flexible actuator assembly;

a sensor for detecting at least one parameter of displacement of said fabricating system and producing a signal in response thereto; and

a circuit in electrical communication with said actuator assembly and said sensor;

wherein, upon the detection of said at least one parameter of displacement by said sensor, said sensor signals said circuit, which, in response, activates said actuator assembly to control vibration.

45. (New) The vibration control system for use with a fabricating system, said vibration control system comprising:

an actuator assembly for controlling vibration;

said actuator assembly comprising

(a) a strain element comprising a piezoelectric or electrorestrictive plate, shell, fiber or composite; and

(b) a conductor;

wherein said strain element and said conductor are mounted in a housing forming a protective body about the strain element, together forming a flexible actuator assembly comprising a thin sheet attached to a major face of the strain element;

a sensor for detecting at least one parameter of displacement of said fabricating system and producing a signal in response thereto; and

a circuit in electrical communication with said actuator assembly and said sensor;

wherein, upon the detection of said at least one parameter of displacement by said sensor, said sensor signals said circuit, which, in response, activates said actuator assembly to control vibration..

46. (New) An vibration control system for use in a fabricating system, said vibration control system comprising:

an actuator assembly for controlling vibration;

said actuator assembly comprising

(a) a strain element comprising a piezoelectric or electrorestrictive plate, shell, fiber or composite; and

(b) a conductor;

wherein said strain element and said conductor are mounted in a housing forming a protective body about the strain element, together forming a flexible actuator assembly comprising a thin sheet attached to a major face of the strain element; and

a circuit in electrical communication with said actuator assembly;

wherein said circuit signals said actuator assembly to control vibration of said fabricating system.

47. (New) An vibration control system for use in a fabricating system, said vibration control system comprising:

an actuator assembly for controlling vibration;

said actuator assembly comprising

(a) a strain element comprising a piezoelectric or electrorestrictive plate, shell, fiber or composite; and

(b) a conductor;

wherein said strain element and said conductor are mounted in a housing forming a protective body about the strain element, together forming a flexible actuator assembly comprising a thin sheet attached to a major face of the strain element; and

a sensor for detecting at least one parameter of performance of said fabricating system and producing a signal in response thereto;

and a circuit in electrical communication with said actuator assembly and said sensor;

wherein, upon the detection of said at least one parameter of performance by said sensor, said sensor signals said circuit, which, in response, activates said actuator assembly to control vibration.

48. (New) The vibration control system for use with a fabricating system having a support structure, said vibration control system comprising:

an actuator assembly for controlling vibration;

said actuator assembly comprising

(a) a strain element comprising a piezoelectric or electrorestrictive plate, shell, fiber or composite; and

(b) a conductor;

wherein said strain element and said conductor are mounted in a housing forming a protective body about the strain element, together forming a flexible actuator assembly comprising a thin sheet attached to a major face of the strain element; and

a sensor for detecting at least one parameter of displacement of said fabricating system and producing a signal in response thereto; and

a circuit in electrical communication with said actuator assembly and said sensor;

wherein, upon the detection of said at least one parameter of displacement by said sensor, said sensor signals said circuit, which, in response, activates said actuator assembly to control vibration in said support structure.

49. (New) A fabricating system comprising;

an actuator assembly for controlling vibration;

said actuator assembly comprising

(a) a strain element comprising a piezoelectric or electrorestrictive plate, shell, fiber or composite; and

(b) a conductor;

wherein said strain element and said conductor are mounted in a housing forming a protective body about the strain element, together forming a

flexible actuator assembly comprising a thin sheet attached to a major face of the strain element; and

a sensor for detecting at least one parameter of displacement of said fabricating system and producing a signal in response thereto; and

a circuit in electrical communication with said actuator assembly and said sensor;

wherein, upon the detection of said at least one parameter of displacement by said sensor, said sensor signals said circuit, which, in response, activates said actuator assembly to control vibration.

50. (New) The vibration control system for use with a fabricating system, said vibration control system comprising:

an actuator assembly for controlling vibration;

said actuator assembly comprising

(a) a strain element comprising a thin piezoelectric or electrorestrictive element having one or both of the length and width dimensions of the thin element at least tens of time greater than the thickness of the thin element; and

(b) a conductor;

wherein said strain element and said conductor are mounted in a housing forming a protective body about the strain element, together forming a flexible actuator assembly;

a sensor for detecting at least one parameter of displacement of said fabricating system and producing a signal in response thereto; and

a circuit in electrical communication with said actuator assembly and said sensor;

wherein, upon the detection of said at least one parameter of displacement by said sensor, said sensor signals said circuit, which, in response, activates said actuator assembly to control vibration..

51. (New) An vibration control system for use in a fabricating system, said vibration control system comprising:

an actuator assembly for controlling vibration;

said actuator assembly comprising

(a) a strain element comprising a thin piezoelectric or electrorestrictive element having one or both of the length and width dimensions of the thin element at least tens of time greater than the thickness of the thin element; and

(b) a conductor;

wherein said strain element and said conductor are mounted in a housing forming a protective body about the strain element, together forming a flexible actuator assembly;

said actuator assembly comprising

(a) a strain element comprising a thin piezoelectric or electrorestrictive element having one or both of the length and width dimensions of the thin element at least tens of time greater than the thickness of the thin element; and

(b) a conductor;

wherein said strain element and said conductor are mounted in a housing forming a protective body about the strain element, together forming a flexible actuator assembly; and

a circuit in electrical communication with said actuator assembly;

wherein said circuit signals said actuator assembly to control vibration of said fabricating system.

52. (New) An vibration control system for use in a fabricating system, said vibration control system comprising:

an actuator assembly for controlling vibration;

said actuator assembly comprising

(a) a strain element comprising a thin piezoelectric or electrorestrictive element having one or both of the length and width dimensions of the thin element at least tens of time greater than the thickness of the thin element; and

(b) a conductor;

wherein said strain element and said conductor are mounted in a housing forming a protective body about the strain element, together forming a flexible actuator assembly; and

a sensor for detecting at least one parameter of performance of said fabricating system and producing a signal in response thereto;

and a circuit in electrical communication with said actuator assembly and said sensor;

wherein, upon the detection of said at least one parameter of performance by said sensor, said sensor signals said circuit, which, in response, activates said actuator assembly to control vibration.

53. (New) The vibration control system for use with a fabricating system having a support structure, said vibration control system comprising:

an actuator assembly for controlling vibration;

said actuator assembly comprising

(a) a strain element comprising a thin piezoelectric or electrorestrictive element having one or both of the length and width dimensions of the thin element at least tens of time greater than the thickness of the thin element; and

(b) a conductor;

wherein said strain element and said conductor are mounted in a housing forming a protective body about the strain element, together forming a flexible actuator assembly; and

a sensor for detecting at least one parameter of displacement of said fabricating system and producing a signal in response thereto; and

a circuit in electrical communication with said actuator assembly and said sensor;

wherein, upon the detection of said at least one parameter of displacement by said sensor, said sensor signals said circuit, which, in response, activates said actuator assembly to control vibration in said support structure.

54. (New) A fabricating system comprising:

an actuator assembly for controlling vibration;

said actuator assembly comprising

(a) a strain element comprising a thin piezoelectric or electrorestrictive element having one or both of the length and width dimensions of the thin element at least tens of time greater than the thickness of the thin element; and

(b) a conductor;

wherein said strain element and said conductor are mounted in a housing forming a protective body about the strain element, together forming a flexible actuator assembly; and

a sensor for detecting at least one parameter of displacement of said fabricating system and producing a signal in response thereto; and

a circuit in electrical communication with said actuator assembly and said sensor;

wherein, upon the detection of said at least one parameter of displacement by said sensor, said sensor signals said circuit, which, in response, activates said actuator assembly to control vibration.